

**DRAFT**  
**UM CREEK RIPARIAN AREAS RESTORATION STRATEGY**  
**Loa/Teasdale Ranger District, Fishlake National Forest**

The UM Creek Riparian Areas Restoration Strategy is a brief synopsis and working guide that includes:

**Framework, Preface and Purpose**

- I) Current riparian conditions of UM creek including associated tributaries and watershed**
- II) Desired riparian conditions of UM creek including associated tributaries and watershed**
- III) Projects and actions to move riparian areas to desired conditions**
- IV) Monitoring plan**

**Framework**

The framework of this strategy is intended to provide "common ground" for all interested individuals to work together to restore the soil, vegetation, aquatic and water resources within the described riparian areas and associated rangelands while continuing to provide and improve the commodities that the rural communities and other individuals depend on.

Many people with various values have concerns about the natural resource conditions of UM Creek and the associated tributaries. Therefore, this strategy is intended to be a working document providing the opportunity for open dialogue and communication. Dialogue and good communication will be critical to more clearly define current and desired conditions, opportunities to improve, as well as the monitoring techniques used to obtain the desired outcomes for all interested individuals that participate.

Through the legal framework of the National Forest Management Act (NFMA) and National Environmental Policy Act, (NEPA) interest individuals, permittees, agencies and organizations will have the opportunity to work together to achieve desired outcomes. Through the NFMA phase, which includes this strategy, planning will occur. Through the NEPA phase, the district ranger selects projects and environmental analysis occurs. Throughout the planning and environmental analysis, all interested stakeholders will be invited to participate.

**Preface**

The UM creek drainage is part of the **Fishlake** National Forest located in the north central Loa side of the **Loa/Teasdale** Ranger District. The area starts approximately 11 miles north of **Loa**, Utah. UM Creek drainage contains approximately 17.5 miles of perennial creek and tributaries as part of the national forest. An estimated **1,500** acres are classified as riparian areas within the UM creek drainage. The drainage ranges **from** approximately 8,000' to 11,600' in elevation.

The UM creek drainage features a variety of geological and plant communities including UM creek and the associated tributaries. UM Creek and associated tributaries flow through open meadows and deep canyons with flows at 1 cfs in the upper reaches of the various tributaries and over 15 cfs at the entrance of UM Creek into **Forsyth** reservoir.

A variety of upland and riparian vegetative plant communities are present across the UM creek landscape. Upland sites at the lower elevations include sagebrush-grass and pinyon-juniper. At higher elevations plant communities are composed of sagebrush-grass, aspen, and conifer. Riparian areas consist of a variety of willows, shrubs, sedges, forbs, and grasses. Associated with the various plant community types are many large and small mammals, birds, reptiles and insects.

As part of the UM creek drainage, a variety of multiple uses occur within the area. The watershed provides habitat for wildlife and fish, forage for livestock, wood products, irrigation water and open space for the public to enjoy and recreate. This riparian ecosystem currently is receiving special emphasis concerning a conservation agreement with the US Fish and Wildlife Service and the **UDWR** for the reintroduction of Colorado Cut throat trout.

## **Purpose**

The purpose of the UM Creek restoration strategy is to improve the conservation and use of these riparian areas to maintain long term productivity and health of all the related natural resources in the areas. Current conditions in various identified riparian areas described below have been identified to not be in as productive and healthy condition as possibly. By moving these areas from current conditions towards a more desirable state, aquatic systems for fish and associated species are expected to improve, forage for big game and livestock will be more productive, and water quality and yield will be maintained or improved.

### **I) Current riparian conditions of UM creek including associated tributaries and watershed**

**Current** riparian conditions are described as follows and their associated cumulative affects:

- Within open riparian meadows and easily accessed areas by herbivores along UM creek and tributaries, stream banks and vegetative conditions are generally in a early to mid seral state with overhanging banks lacking. As a result, stream channel conditions are wider and shallower than is expected for the associated vegetation and valley types and **temperature** means and fluctuations are higher than is normally expected for high elevation streams.
- Within open riparian meadows and easily accessed areas by herbivores along UM creek and tributaries, all the right plant species are present although late seral plant species are limited in abundance (willows are lacking in willow adapted areas, late seral sedges are limited along stream banks and wet areas)
- Woody species including conifer expansion within aspen stands and sagebrush on upland sites may cause potentially declining forage and water production conditions.
- Nutrient loading, sediment and overland runoff rates are exceeding inherent levels within various tributaries of UM Creek
- Associated with current stream channel conditions, potential for a productive cold water fisheries declines
- Upper Right Fork UM Creek, Upper Left Fork UM Creek, Water Flat, and Danish Meadows exhibit daily temperature fluctuations during the summer time over 25° F.

Current riparian conditions in various locations do not lend to the potential for a sustained healthy aquatic system that benefits a cold-water fishery. In addition, areas along stream banks where soil is exposed will eventually move down stream. Over a period of time, vegetative conditions decline and benefiting uses are diminished or lost. **Connected** to these riparian areas, woody plant species expansion on uplands reduces under story vegetation and the decline of aspen stands. While perhaps undetermined at **this** point, this may be adding to undesirable conditions of specific riparian areas.

### **II) Desired riparian conditions of UM creek including associated tributaries and watershed**

Desired riparian conditions are described as follows and their associated cumulative affects:

- Stabilize stream banks to a late seral state (overhanging banks with minimal soil exposed)
- Narrow and deepen water channels to the associated vegetation and valley type
- Provide late seral vegetative shade (abundance of sedges) including willows along green line where acceptable to the site
- Minimize nutrient loading, sediment and overland runoff rates to within inherent levels of various tributaries of **UM** Creek
- Increase macro-invertebrates within stream channel
- Lower water temperatures during summer months within a range typically expected at the given elevation and late seral riparian community type
- Increase plant vigor and forage production on uplands and riparian areas
- Maintain or increased ground cover within the surrounding rangeland

- Reduce woody species composition by allowing natural or prescribed disturbance in conifer and sagebrush sites within the surrounding rangeland

Moving towards the identified desired riparian conditions in specific areas, aquatic habitat for fish and other related organisms would benefit. Ground cover will be maintained to protect the soils and better hold soil moisture, stream banks will stabilize, plant vigor and production will improve, therefore in general benefiting wildlife and livestock. Water quality and yield will be sustained for the benefit of down stream water users.

### III) Projects and Actions to move Riparian Areas to Desired Conditions

Various projects and actions have been identified as opportunities to improve the riparian conditions towards desired conditions in the U.M. creek drainage. The list below is not inclusive and can be adjusted as needed.

#### A) Livestock Management:

Improve timing, duration, intensity and distribution of livestock within and adjacent to riparian areas.

##### 1) Fence priority sections of UM Creek for improved livestock control

Priority	Permanent Riparian Enclosures	Estimated length	Type of fence	Estimated cost
1	Below the Sections	1 mile	4 strand barbed wire	\$8,000
2	Right Fork below Jimmy Eye	3 miles	4 strand barbed wire	24,000
3	Right Fork above Jimmy Eye	1.5 miles	4 strand barbed wire	12,000
4	Left Fork	5 miles	4 strand barbed wire	40,000
5	Danish Meadows	2 miles	4 strand barbed wire	16,000
6	Upper Right and Left Fork UM Cross Fence	1.5 miles	4 strand barbed wire	12,000

Specific maps will be provided as they are developed on request for the various locations.

##### 2) Develop off site watering areas

- Utilize temporary watering devices to move livestock away from the riparian areas, estimate cost \$5,000  
Develop permanent watering sources to move livestock away **from** the riparian areas, estimated cost \$10,000  
(location of permanent sites would be determined during 2003 field season)

##### 3) Herd and place attractants (salt and molasses) to improve livestock distribution away **from** riparian areas into adjacent suitable areas. Suggested herding practices may include:

Move livestock away from riparian areas in the afternoon, quietly allow cattle to bunch, make sure cows and calves are paired up

Allow livestock to graze while moving

- After moving cattle, herders should remain with livestock until animals have settled down to graze
- Keep replacement heifers with mothers who are not "riparian dwellers" but instead prefer the slopes
- Focus breeding program on animals that prefer to "range" rather than to "dwell" on the riparian areas

Condition livestock with molasses at home and use as an effective herding tool on the range

- Spend time daily riding or walking quietly with cattle etc (low stress livestock handling).

4) Manage stocking rates considering timing, intensity and duration along riparian areas

During drought years, drought being defined as a period when precipitation is less than 75% of the average amount, adjust stocking rates appropriately to meet proper use criteria

- Terms and conditions of the grazing permit include proper use criteria for forage and browse removal as well as soil disturbance in riparian areas from hoof action

Vegetation Type	Utilization Level	Comments
Sedges along Green line (waters edge)	6" stubble height	Throughout grazing season Measurement of key sedges along waters edge
Non hydric species in riparian areas	2" stubble height	Throughout grazing season Measurement of key grasses within riparian areas adjacent to waters edge
Riparian Browse (willows)	<40% use on annual or new leader production	Throughout grazing season Measurement of use primarily on willows annual growth
Along Stream Banks hoof action	<20% disturbance or soil exposed <b>from</b> hoof action (Dixie NF Plan) this needs to be cooperatively discussed	Throughout grazing season, a measurement of soil exposed <b>from</b> hoof action
Upland key forage producing areas	40-60% use on annual forage production depending on the given site	Throughout grazing season Measurement of forage utilized in upland key areas

- Cooperatively plan the annual rotation schedule that best match plants physiological requirements through the various pastures established. No livestock use will be considered in riparian enclosures until desired riparian conditions have been achieved.

B) Dispersed Recreation and Special Uses Management

1) Dispersed camping sites and ATV travel within or adjacent to riparian areas

- Insure dispersed recreation and special use campsites are at least 100' from riparian areas and keep <20% bare soil exposed between sites and stream channels. Utilize Forest closure orders as needed to minimize excessive soil compaction or exposure and heavy travel on vegetation. Utilize rock barriers as needed to maintain buffer zones of dispersed campsites **from** riparian areas. Estimated cost \$6,000
- Only allow designated and administrative ATV travel routes and strictly enforce unauthorized cross-country ATV use.
- Designate ATV stream crossings and construct bridges or culverts to minimize soil displacement into stream channels and the potential of whirling disease spread, estimated cost \$5,000
- Relocate **and/or** properly maintain ATV trails connected to riparian areas to minimize sediment flow from these areas. Specifically, there is a large gully next to the trail coming down **from** the pass from the Salina side that flows directly into Right Fork.
- Provide information signs in the area discussing "tread lightly" to help restore UM creek and tributaries estimated cost \$1,000

### C) Wildlife and Fisheries Management

- 1) Whirling disease within UM creek and associated tributaries
  - Provide information signs within the UM Creek drainage explaining whirling disease and the precautions necessary to prevent the spread of this parasite. estimated cost \$1,000
- 2) Big game herbivory
  - Manage big game within state required target herd sizes. Specifically monitor big game use on browse within fenced enclosures and take preventive measures to allow browse recovery as needed. Actions if needed may include deterrents, various harvest strategies or cages to protect young willows.
- 3) Beaver management
  - Consider current beaver activity and their effects on the associated location and provide appropriate course of action or no action

### D) Upland and Green Line Vegetation Management

- Plant willows or other riparian woody plant species within enclosures along riparian areas capable of supporting browse reestablishment, estimated cost \$5,000 (have expert review of planting technique, plant species to use, and adaptable sites)
- Place juniper or conifer revetments to accelerate stream bank stabilization, estimated cost \$15,000
- Maintain or increase upland ground cover
- Allow or prescribe disturbance within conifer and sagebrush sites to improve the watershed estimated cost \$20,000
- Rest the area burned by Johnson fire through two growing season. Manage herbivory so that at least 95% of the area is **ungrazed** through two growing seasons and continue to monitor for successful aspen reestablishment.

#### IV) Monitoring Plan

Various monitoring methods will be used to measure current riparian conditions and progress towards desired condition within areas of concern on UM Creek and associated tributaries

Item Monitored	Monitoring Method	Established Criteria	Comments
Upland Ground Cover within key foraging areas by ungulates	Line intercept, photo point comparison through time	Ground cover should be at least 85% of potential of given <b>plant community</b>	Determine potential and desired ground cover
Temperature fluctuations within stream channels	HOBO continuous temperature monitors for <b>air and h2o temperature</b> at given sites	State standards for cold-water biota, <b>maximum temp. 70°F</b> and maximum temp. fluctuation 20°F	Used by <b>UDWR</b> to as part of the whirling disease study
Plant species composition along green line( <b>waters edge</b> )	Green Line survey, photo point comparison through time Integrated Riparian Evaluation Guide	Abundance of late <b>seral carex</b> species and willows within associated vegetation types.	Determine abundance of desired late <b>seral</b> sedge species and willow species Water and Black flat have established sites. Additional sites can be added
Stream bank stability and overhanging banks	Green Line survey, photo point comparison through time Integrated Riparian Evaluation Guide	<20% stream bank disturbance by hoof action along stream channels (soil exposed to moving water) This has been suggested to be lowered	Determine the stability and bank holding capacity of stream channels including overhanging banks to improve aquatic habitat
Stream width to depth ratios	Stream Cross-sections, bank profiles, longitudinal profiles, pebble and fines counts	<b>Width/Depth</b> ratios in general be about half of current <b>width/depth</b> ratios (Deiter notes 2003)	Determine current and desired width to depth ratios. Established sites include Water Flat, Black Flat, and Jimmy Eye. Additional sites may be included as needed
Total Maximum Daily loads	State water quality samples	Load reductions specified in the Fremont River TMDL	Determine if water quality is within state standards. Samples have been taken at Water Flat and Black Flat
Sedimentation flows	Pebbles and sediment fines counts	<b>Fishlake</b> Forest Plan standard for inorganic fines is <b>3.2mm</b> of 25% or less of the total surface substrate	Determine sedimentary flows that exceed inherent sedimentary flows
Plant vigor and forage production	Clip and weight cages, Visual estimates	Maximize to the extent possible in relation to annual precipitation forage quantity and quality	Determine forage production for improved information to match stocking rates, distribution and timing of use
Annual key sedge stubble height surveys along green line	Line transects of stubble height measurements	6" stubble height of sedges along green line throughout the grazing season	Annual measurement to maintain plant vigor and associated protection of stream banks
Annual forage utilization surveys for uplands	Clip and weigh comparison, ocular estimate, FS utilization	40-60% use on key upland forage areas	Determine annual use levels as a guide to maintain plant health and ground cover

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